

NOTE ON AMPUTATIONS FOR JOINT-DISEASE
WHEN LUNG TUBERCULOSIS COEXISTS.¹

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THE frequency with which tuberculous joint affections are complicated with tuberculous diseases of the internal organs, is such as to make the question of their mutual reaction one of importance.

Willemer, in his report on the results obtained in tuberculous disease of the knee-joint by König at the Göttingen clinic, during the seven years ending October, 1882 (*Deutsche Zeitschrift f. Chirurg.*, Bd. 22, Hefte iii. und iv.; *ANNALS OF SURGERY*, 1885, vol. ii. p. 514), states that of 174 cases operated upon, 15 per cent. of those below 10 years of age, 20 per cent. of those between 10 and 20, and 37 per cent. of those over 20, were complicated with tuberculous diseases of internal organs. Volkmann, in his address on tuberculous surgical affections, at the German Surgical Congress of 1885, said "Local tubercular disease of other organs combines far more rarely in children than in adults with fatally progressing lung tuberculosis. In an older individual, having—e. g., caries of the wrist, it is exceptional that he does not have or is not soon attacked by pulmonary tuberculosis." Vincent, of Lyons, in his article on scrofulo-tuberculous diseases of the knee, in the *International Encyclopedia of Surgery*, vol. vi., p. 925, speaking of the results of a general scrutiny of patients affected with tubercular osteitis, or osteo-arthritis, says "Too often there are found manifest signs of advanced pulmonary tuberculosis."

It is needless to multiply authorities or observations for the

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purpose of emphasizing the frequency of the co-incidence of tuberculosis of internal organs with knee and joint disease of like character. The question which I wish to submit for consideration in the present note is, What modifying influence, if any, should the coexistence of an actively progressing lung tuberculosis have upon the operative measures which shall be adopted in the treatment of tuberculous joint affections? How is the lung tuberculosis likely to be affected by the operation upon the extremity? What disturbance in the repair of the operation wound in the extremity is likely to arise from the coexistent pulmonary trouble? Is it worth while, in the presence of an affection of an internal organ, which with great certainty entails a fatal termination, to subject a patient to the traumatism required to rid him radically of a local affection of an extremity?

A case in point is the following:

In January, 1879, nearly eight years ago, I first was consulted by a lady, then æt. 37, on account of slight lameness of the right knee. There was a tenderness on pressure on the internal condyle of the femur with some puffiness of the overlying soft tissues. In the preceding March she had slightly bruised this knee, the injury being so insignificant that it was not considered worthy of attention until the subsequent increasing lameness compelled attention. The father of the patient, and a maternal uncle, had both died of tuberculosis pulmonalis; and at the period of the injury and during the subsequent years, the patient was suffering a severe strain upon her constitutional vigor through domestic afflictions and deprivations. It was impracticable for her to give to the limb the rest required for its proper treatment, and I shortly lost sight of her. Three years later, June, 1882, I saw her again, when she consulted me on account of persistent cough, with debility and loss of weight. Physical examination revealed a deposit at the apex of the left lung. Her knee was still troubling her some, but she was able to walk about without any marked limp. In the interval that had passed, she had had two attacks of acute synovitis of the affected knee. Under treatment during the summer and autumn, a markedly progressive improvement in her cough and in her general health took place, but her lameness increased, with periarticular muscular rigidity and nocturnal spasms, followed by a renewed acute synovitis. Immobilization with extension

was instituted, and finally, pus having been demonstrated by the aspirator, free incision into the joint with antiseptic irrigations were made. The joint suppuration soon ceased under this treatment; the wound healed, and wearing an immobilizing apparatus, the patient was able to be around upon crutches during some months. An attempt to gain increased freedom of use was then followed by a renewed acute suppurative attack, which persisted despite antiseptic irrigations and drainage as before. The pain and loss of sleep combined with the discharge to sap the patient's general strength. Meanwhile the dormant pulmonary trouble was reawakened, and the general symptoms, as well as physical examination, indicated a rapidly progressing lung tuberculosis present.

In this case the aggravated character of the suffering caused by the knee-joint affection, together with the depressing effect of the confinement to the bed which it necessitated, determined me to undertake a radical operation for the removal of the parts involved in the joint affection, despite the extent and activity of the lung disease.

Perhaps the most important guide to the surgeon's action is to be found in what is suggested in the remark just made. Any possible remote unfavorable influence upon the lung affection that an operation might entail, or any possible disturbance of healing that might later affect the operation wound is thrown into the back-ground by the more immediately pressing necessity of relief to the present suffering, which the knee and joint affection is inflicting. In a condition such as I have described, the joint affection constitutes an acutely urgent condition, the indications for the relief of which are of supreme importance.

Accordingly, in the case under consideration, I proceeded to operate in August, 1884. The joint was opened by the usual anterior semi-lunar incision as for exsection; the articular surfaces of the femur and tibia were found extensively eroded, the crucial ligaments had disappeared, and the whole of the exposed surface was soft and friable. Upon attempting to apply the sharp spoon to it, the instrument passed almost without resistance for some distance up the shaft of the knee into a caseous mass. The evident tuberculous degeneration of the lower end of the femur was so extensive that complete removal of all the affected tissue by excision was out of the question. I therefore proceeded to amputate, making the section of the femur at about its

middle third. The local result was all that could have been wished; healing per primam throughout most of the wound was effected. A simple small sinus persisted for some weeks, but finally spontaneously closed. In three weeks the patient was able to leave her bed, and soon resumed the direction of her household affairs. The effect upon the lung tuberculosis was also very marked; the activity of its further progress was greatly hindered, cough diminished, appetite improved, and general strength increased. Two years and three months have now passed since the amputation, and the patient is still living, though she is far from being a well woman; being distinctly tuberculous, with cough, dyspnoea on exertion, and general debility. No extension of her lung trouble, however, has been manifested up to the present date. The stump is firm, and free from any signs of tubercular degeneration whatever.

In connection with this case, I would like to cite two cases which were embodied in a memoir by Dr. Mabboux, of Lisle, and commented on by Dr. Chauvel at the meeting of the French Surgical Society of February 10, 1886. In the first case, tuberculous caries of the metatarsal bones of a young soldier having been treated by resection, there followed synovitis of the periosteal sheath, and later, suppuration of the tibio-tarsal articulation and concomitant pulmonary tuberculosis. After three months, all the symptoms continuing to be more unfavorable, the foot was amputated; rapid cure followed; the pulmonary symptoms abated, and, finally, disappeared, and robust health was regained.

In the second case, likewise in the person of a young soldier, suppurating knee-joint disease and beginning pulmonary tuberculosis coexisted. Arthrotomy was done, the pus evacuated, the fungosities removed, and the denuded bone scraped; this was followed by redoubled suffering, probable meningitis, and more pronounced pulmonary symptoms. At the end of a month the pain was atrocious, emaciation extreme, the exhaustion almost complete, and early death certain. At the earnest wish of the patient, and in spite of the gravity of the condition, amputation of the the thigh was done. Great improvement followed for one month, then the stump ulcerated, fever reappeared, tuberculosis of the abdominal viscera de-

clared itself, and, finally, death at the end of four months after the amputation, but no recurrence of the intense suffering for which the operation had been performed.

In the discussion which followed M. Chauvel's report, a number of additional cases were adduced in which either apparent complete recovery, or great improvement in a lung tuberculosis had followed amputation for coexisting joint disease. All, however, were not ready to accept the tentative proposition of Chauvel, that local tuberculosis, as in osseous and articular affections, is to be considered as a neoplasm, the more malignant from its tendency to generalization, and to be treated under the same rules as sarcoma and carcinoma; and that early amputation is indicated whenever the extirpation of the disease in place is impossible, or when the anatomical conditions do not permit the complete and certain ablation of all the infected tissues.

Without attempting any elaborate discussion of the many phases which are presented by coexisting lung tuberculosis and osteoarthritic tuberculosis, the materials for which have amassed in great abundance during the last few years, I desire to close the present brief note by the following theses, which seem to be in accordance with present experience.

1. The probabilities of a spontaneous cure, or prolonged abeyance of a tubercular bone or joint trouble, as a result of expectant and palliative treatment—*e. g.*, improved hygiene, rest, counter-irritation—is much greater in children than in adults.
2. The probability of the presence or early development of lung tuberculosis in case of tubercular bone and joint affections, is much greater in adults than in children.
3. Incomplete operations, as drainage and irrigation of joints, évidement, and resections in which all of the diseased tissue is not removed, are less likely to be followed by ultimate good results in adults than in children.
4. Operative interference of a radical character is justifiable at an earlier date, in the history of a bone or joint tubercular affection, in an adult than in a child.
5. When a lung tuberculosis is present, and an operation for

the relief of a coexisting bone or joint affection is indicated, as the result of such operation, the lung affection, while in some cases influenced, is more frequently temporarily checked in its progress, and in some instances is apparently entirely removed.

6. Local relapse after an operation for an osteo-arthritis tubercular disease, lung tuberculosis existing, is exclusively conditioned upon incompleteness of the operation—the fact that somewhere tubercular tissue escaped removal—and not upon any influence exerted by the lung affection.

7. In any case of osteo-arthritis tuberculosis demanding operation, in which a doubt exists as to the possibility of removing absolutely all the diseased tissue by the more conservative methods of arthrectomy or excision, the coexistence of lung tuberculosis would be a circumstance that would add weight to the reasons for having recourse to the more radical operation of amputation.

8. After an amputation in perfectly healthy parts, as prompt healing may be expected in persons suffering from lung tuberculosis, as after such an operation in a healthy person. Relapses at the stump do not occur even in persons with advanced lung disease.